



EDITORIAL

The treatment of attention deficit hyperactivity disorder in children and adolescents: Epidemiology, multimorbidity and integrated health services[☆]



El tratamiento del trastorno por déficit de atención e hiperactividad en niños y adolescentes: epidemiología, multimorbilidad y servicios de salud integrados

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Attention deficit hyperactivity disorder (ADHD) is a childhood-onset disorder characterised by persistent patterns of inattention, hyperactivity and impulsivity that may continue into adulthood and jeopardise functional and relationship outcomes, both in school and in everyday activities. It is one of the most prevalent neurodevelopmental disorders in children and adolescents, although it has a chronic course that requires long-term treatment.¹

In recent years, the management of ADHD has become increasingly complex as new therapies are introduced in clinical practice. We do not have comprehensive knowledge of all the causes that may play a role in the development of ADHD, but it seems to result from the interaction of multiple socio-cultural, environmental and genetic factors. At

present, there are still uncertainties and various challenges regarding the diagnosis and treatment of ADHD that may be overshadowed by the needs of individuals living with the disorder. For instance, determining whether a child has ADHD is a complex process that involves several steps. There is no single test that can be used to diagnose ADHD, and other health problems, such as depression, anxiety and some learning disorders, may present with similar symptoms.¹ Although pharmacological treatment seems effective, especially in combination with psychological interventions, clinical trials and meta-analyses reflect some uncertainty as to which are the most suitable therapeutic modalities based on outcome measures that are important to patients and families.² For instance, there is variability in how symptoms are evaluated in trials, which poses a significant challenge in determining the short- and long-term effects of particular treatments.² In addition, ADHD may present in association with other physical or mental disorders (multimorbidity). However, most trials are conducted in samples of patients with very specific and fairly homogeneous characteristics, which limits our knowledge on the effects of treatment in patients with ADHD and multiple comorbidities. On the other

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hand, the lack of a patient-centred integration of health care services—ensuring accessibility and timeliness in the delivery of the services required to achieve desired (health) outcomes with a cost-effectiveness that is acceptable to society—further complicates matters.^{2,3}

We need further research on the epidemiology of health care, the use of health care resources and multimorbidity to inform clinical practice and public health policy. The article by Sánchez Martínez and Guillén Pérez⁴ published in this issue may contribute to the debate on the epidemiology of pharmacological treatment of ADHD in the Spanish national health care system. Based on data on dispensed prescriptions in the Region of Murcia, the authors found that the defined daily dose per 1000 inhabitants per day seemed to have increased in the child and adolescent population in the 2010–2014 period, although there were significant variations based on age (higher consumption in the 10–14 years group), sex (higher consumption in males) and geographical area (higher consumption in urban vs rural areas).⁴ Previously published studies have described utilisation rates that suggest drastic increases in different countries and regions, and a wide variability in clinical practice that has spurred considerable controversy and public debate regarding the management of ADHD. Establishing what constitutes appropriate use of treatments (avoiding overuse but also underuse)³ seems to be no easy task when it comes to a disorder like ADHD. In fact, current labelling recommends against pharmacological treatment in patients with mild forms of the disorder (as it is not the first-line treatment). In fact, they recommend that pharmacological treatment be used as part of a multimodal treatment approach (including psychological and socio-educational interventions) when other interventions used as monotherapy have proven insufficient, regardless of the severity of ADHD.

When ADHD is associated with several other disorders, its course becomes more complex and its management more challenging. In this regard, learning which disorders are associated with ADHD and the prevalence of comorbidity is important to better understand how ADHD may improve (or worsen), as well as to identify predictors that could guide the selection of the most effective treatments. In this issue of the journal, Soto Insuga et al.⁵ have described the frequency of idiopathic toe walking (high stepping), a gait abnormality characterised by the absence of heel strike, in children with a diagnosis of ADHD and a normal neurological evaluation. To do so, they analysed a sample of 312 patients with ADHD assessed in the Paediatric Neurology clinic of a university hospital. The authors reported a prevalence of idiopathic toe walking of 20.8% (65/312) in their clinic, as well as the presence of other disorders associated with ADHD

(e.g. language disorders [33%], tics [15%] or oppositional defiant disorder [15%]).

In short, the management of ADHD unfolds in a complex system of health care delivery, with a host of causes of a highly diverse nature. We believe that further research and effort are required to find the way to offer individualised treatment approaches within the framework of the health care system, throughout the lifespan and at the key stages of the individual's development (for instance, school age or the transition to adult care).

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Conflicts of interest

The authors have no conflicts of interest to declare in relation to this editorial.

References

1. Thapar A, Cooper M. Attention deficit hyperactivity disorder. *Lancet*. 2016;387:1240–50, [http://dx.doi.org/10.1016/S0140-6736\(15\)00238-X](http://dx.doi.org/10.1016/S0140-6736(15)00238-X).
2. Catalá-López F, Hutton B, Núñez-Beltrán A, Page MJ, Rido M, Macías Saint-Gerons D, et al. The pharmacological and non-pharmacological treatment of attention deficit hyperactivity disorder in children and adolescents: a systematic review with network meta-analyses of randomised trials. *PLOS ONE*. 2017;12:e0180355, <http://dx.doi.org/10.1371/journal.pone.0180355>.
3. Saini V, Garcia-Armesto S, Klemperer D, Paris V, Elshaug AG, Brownlee S, et al. Drivers of poor medical care. *Lancet*. 2017;390:178–90, [http://dx.doi.org/10.1016/S0140-6736\(16\)30947-3](http://dx.doi.org/10.1016/S0140-6736(16)30947-3).
4. Sánchez Martínez DP, Guillén Pérez JJ. Epidemiología del tratamiento farmacológico del trastorno por déficit de atención e hiperactividad (TDAH) en la Región de Murcia: variabilidad por sexo y edad. *An Pediatr (Barc)*. 2018;88:183–90.
5. Soto Insuga V, Moreno Vinués B, Losada del Pozo R, Rodrigo Moreno M, Martínez González M, Cutillas Ruiz R, et al. ¿Caminan de manera diferente los niños con TDAH? Relación entre marcha de puntillas idiopática y TDAH. *An Pediatr (Barc)*. 2018;88:191–5.